acquiring section 1802 acquires an XML signature and encryption protocol of each web service on the basis of web service URI described in the XML document. The method for preparing the XML signature and encryption protocol list 106 is similar to the method used in the XML signature and encryption protocol acquiring section 105. After that, the processing to the generation of the XML signature and encryption module 111 is similar to that of the first embodiment.

The XML signature and encryption executing section 1803 executes the XML signature and encryption module 111 generated by the XML signature and encryption module output section 110 with respect to the XML document 115, and sends the XML document 116 obtained as a result of the execution, as a web service transmission document.

According to the present invention, when newly developing a web service utilizing plural web services, a module for performing digital signature and encryption to XML in accordance with all the XML signature and encryption procedures required the web services to be used is automatically generated. Therefore, the burden on developers can be reduced.

What is claimed is:

     1.   A system of generating procedure for digital signature and encryption to an XML document, comprising:

     a unit for acquiring a protocol describing procedures

for digital signature and encryption to XML from each of web services to be used;

a unit for acquiring a schema of an element to be a target of digital signature and encryption to XML from the protocol; and

a unit for analyzing the acquired protocol and schema and outputting a proper procedure for digital signature and encryption to XML that meets requirements of the protocol and schema.

2. The system of generating procedure for digital signature and encryption as claimed in claim 1, wherein a program for performing digital signature and encryption to XML in accordance with the procedure for digital signature and encryption to XML is automatically generated.

3. The system of generating procedure for digital signature and encryption as claimed in claim 2, wherein when sending a message in a web service, the generated program for digital signature and encryption to XML is executed for the message and the result of the execution is sent.

4. The system of generating procedure for digital signature and encryption as claimed in claim 2, wherein when generating the program for digital signature and encryption to XML, a correspondence between an identifier of an XML schema for an XML element to which digital signature and encryption to XML are to be performed, an identifier of a list of the protocols

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for digital signature and encryption to XML, and the program for digital signature and encryption to XML is stored into a storage device.

5. The system of generating procedure for digital signature and encryption as claimed in claim 4, wherein when sending an XML document, an XML signature and an encryption module are decided from the identifier of the XML schema and the identifier of the list of the protocols for digital signature and encryption to XML with reference to the correspondence, then the program for digital signature and encryption to XML is executed with respect to the XML document, and the result of the execution is sent.

6. The system of generating procedure for digital signature and encryption as claimed in claim 2, wherein when sending an XML document, a protocol for digital signature and encryption to XML is acquired according to an identifier of a web service described in the XML document, then a program for digital signature and encryption to XML is generated from the protocol for digital signature and encryption to XML, the program for digital signature and encryption to XML is executed with respect to the XML document, and the result of the execution is sent.